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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,899	11/13/2003	Joun Ho Lee	8733.275.20-US	6109
30827	7590	12/27/2005	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			NGUYEN, HOAN C	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,899

Applicant(s)

LEE ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 22-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 22-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to the amended claim 1 based on the Response filed on 10/14/2005 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 23-24 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by **Lyu et al. (US2001/0001567)**.

Lyu et al. teach (Figs. 1-5) a multi-domain liquid crystal display device comprising:

Claim 1:

- first and second substrates 1/2;
- a liquid crystal layer 3 between the first and second substrates;
- a plurality of data lines for inherently applying a data signal on the first substrate;
- a plurality of gate lines 81/82 for inherently applying a gate signal, the gate lines crossing the data lines to define a plurality of pixel regions, wherein each pixel region has a multi-domain structure which includes a slit;

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- a thin film transistor (TFT) near each crossing of the gate lines and the data lines;
- pixel electrode 4/10 connected to a drain electrode of the thin film transistor in each pixel region
- an auxiliary electrode line (storage capacitor electrode 11) electrically connected to at least one of the gate lines in each pixel region, the auxiliary electrode line and the pixel electrode inherently controlling an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region during an operation of the multi-domain liquid crystal display since there is the different voltage between an auxiliary electrode line (storage capacitor electrode 11) and common electrode 4/10, thus auxiliary electrode line will use to control an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region.

Claim 23:

- a common electrode 4 on the second substrate 2;

wherein

Claim 24:

- the common electrode 4 including an opening area 15;

Claim 32:

- the auxiliary electrode line is formed in the same layer as the gate lines.

2. Claims 1, 22-23 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al. (US5668650A).

Mori et al. teach (Fig. 1) a multi-domain liquid crystal display device comprising:

Claim 1:

- first substrate and second substrate (inherence for the active matrix LCD device);
 - a liquid crystal layer inherently between the first and second substrates;
 - data lines Ld for applying a data signal on the first substrate;
 - gate lines Lg crossing the data lines to apply a gate signal;
 - pixel electrodes 2 for driving a liquid crystal of the liquid crystal layer;
 - switching devices TFT 3 near crossing the gate lines and the data lines;
 - auxiliary electrode lines AG electrically connected to at least one of the gate lines
- in each pixel region, the auxiliary electrode line and the pixel electrode inherently controlling an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region during an operation of the multi-domain liquid crystal display since there is the different voltage between an auxiliary electrode line and common electrode, thus auxiliary electrode line will use to control an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region.

Claim 23:

- a common electrode inherently formed on the second substrate.

wherein

Claim 22:

- one of the auxiliary electrode line AG is formed between the pixel electrode 2 and data line Ld at outside of pixel electrode in a pixel as Fig. 1 shown.

Claim 32:

- the auxiliary electrode line is formed in the same layer as the gate lines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lyu et al. (US2001/0001567)** as applied to claims 1, 23-24 and 32 above, in view of Takeda et al. (US 6724452 B1).

Lyu et al. fail to disclose a multi-domain liquid crystal display device with a dielectric structure on the second substrate.

Takeda et al. teach a multi-domain liquid crystal display device with a dielectric structure (dielectric protrusion) on the second substrate as domains regulating means for providing the ion adsorption capacity to the dielectric structure.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Lyu et al disclosed with a dielectric structure (dielectric protrusion) on the second substrate as domains regulating means for providing the ion adsorption capacity to the dielectric structure as taught by Takada et al. (col. 73 lines 10-17).

2. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US5668650A) as applied to claims 1, 22-23 and 32 above, in view of Takeda et al. (US 6724452 B1).

Mori et al. fail to disclose a multi-domain liquid crystal display device with a dielectric structure on the second substrate.

Takeda et al. teach a multi-domain liquid crystal display device with a dielectric structure (dielectric protrusion) on the second substrate as domains regulating means for providing the ion adsorption capacity to the dielectric structure.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Mori et al. disclosed with a dielectric structure (dielectric protrusion) on the second substrate as domains regulating means for providing the ion adsorption capacity to the dielectric structure as taught by Takada et al. (col. 73 lines 10-17).

3. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lyu et al. (US2001/0001567)** as applied to claims 1, 23-24 and 32 above, in view of Yamamoto et al. (US5657100A).

Lyu et al fail to disclose a multi-domain liquid crystal display device wherein the liquid crystal layer has a positive dielectric anisotropy (claim 26) or negative dielectric anisotropy (claim 27).

Yamamoto et al. teach a liquid crystal display device wherein the liquid crystal layer has a positive dielectric anisotropy for obtaining high contrast ratio (col. 5 lines 22-31) or the liquid crystal layer has negative dielectric anisotropy for obtaining low contrast ratio (col. 7 lines 14-21).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Lyu et al disclosed with the liquid crystal layer has a positive dielectric anisotropy for obtaining high contrast ratio as taught by Yamamoto (col. 5 lines 22-31) or the liquid crystal layer has negative dielectric anisotropy for obtaining low contrast ratio as taught by Yamamoto (col. 7 lines 14-21).

4. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al (US5668650A) as applied to claims 1, 22-23 and 32 above, in view of Yamamoto et al. (US5657100A).

Mori et al fail to disclose a multi-domain liquid crystal display device wherein the liquid crystal layer has a positive dielectric anisotropy (claim 26) or negative dielectric anisotropy (claim 27).

Yamamoto et al. teach a liquid crystal display device wherein the liquid crystal layer has a positive dielectric anisotropy for obtaining high contrast ratio (col. 5 lines 22-31) or the liquid crystal layer has negative dielectric anisotropy for obtaining low contrast ratio (col. 7 lines 14-21).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Mori et al disclosed with the liquid crystal layer has a positive dielectric anisotropy for obtaining high contrast ratio as taught by Yamamoto (col. 5 lines 22-31)

or the liquid crystal layer has negative dielectric anisotropy for obtaining low contrast ratio as taught by Yamamoto (col. 7 lines 14-21).

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lyu et al. (US2001/0001567)** as applied to claims 1, 23-24 and 32 above, in view of Patel (US5841500A).

Lyu et al fail to disclose a multi-domain liquid crystal display device with the liquid crystal layer including a chiral dopant.

Patel teaches a multi-domain liquid crystal display device with the liquid crystal layer including a chiral dopant for breaking the symmetry by inducing the twist only in one helical direction, and to thereby avoiding scattering from different domains. This solution is well known in the prior art (col. 3 lines 42-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Lyu et al disclosed with the liquid crystal layer including a chiral dopant for breaking the symmetry by inducing the twist only in one helical direction, and to thereby avoiding scattering from different domains as taught by Patel (col. 3 lines 42-47).

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al (US5668650A) as applied to claims 1, 22-23 and 32 above, in view of Patel (US5841500A).

Mori et al fail to disclose a multi-domain liquid crystal display device with the liquid crystal layer including a chiral dopant.

Patel teaches a multi-domain liquid crystal display device with the liquid crystal layer including a chiral dopant for breaking the symmetry by inducing the twist only in one helical direction, and to thereby avoiding scattering from different domains. This solution is well known in the prior art (col. 3 lines 42-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Mori et al. disclosed with the liquid crystal layer including a chiral dopant for breaking the symmetry by inducing the twist only in one helical direction, and to thereby avoiding scattering from different domains as taught by Patel (col. 3 lines 42-47).

7. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lyu et al. (US2001/0001567)** as applied to claims 1, 23-24 and 32 above, in view of Kim et al. (US6335776B1).

Lyu et al fail to disclose a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film (claim 30) or a negative biaxial film (claim 31).

Kim et al. disclose a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film for compensating effectively the right-left viewing-angle by widening the area without gray inversion, increasing contrast ratio in an inclined direction (col. 9 lines 53-60) or a negative biaxial film for obtaining wider viewing-angle characteristics as compared with the negative uniaxial film as taught by Kim (col. 9 lines 61-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Lyu et al disclosed with a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film for compensating effectively the right-left viewing-angle by widening the area without gray inversion, increasing contrast ratio in an inclined direction (col. 9 lines 53-60) or a negative biaxial film for obtaining wider viewing-angle characteristics as compared with the negative uniaxial film as taught by Kim (col. 9 lines 61-67).

8. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US5668650A) as applied to claims 1, 22-23 and 32 above, in view of Kim et al. (US6335776B1).

Kim discloses a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film (claim 30) or a negative biaxial film (claim 31).

Mori et al. fail to disclose a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film for compensating effectively the right-left viewing-angle by widening the area without gray inversion, increasing contrast ratio in an inclined direction (col. 9 lines 53-60) or a negative biaxial film for obtaining wider viewing-angle characteristics as compared with the negative uniaxial film (col. 9 lines 61-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain liquid crystal display device as Mori et al disclosed with a multi-domain liquid crystal display device with the phase differential film includes a negative uniaxial film for compensating effectively the right-left viewing-angle by widening the area without gray inversion, increasing contrast ratio in an inclined direction (col. 9 lines 53-60) or a negative biaxial film for obtaining wider viewing-angle characteristics as compared with the negative uniaxial film as taught by Kim (col. 9 lines 61-67).

Response to Arguments

Applicant's arguments filed on 10/14/2005 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

References fail to disclose auxiliary electrode lines electrically connected to at least one of the gate lines in each pixel region, the auxiliary electrode line and the pixel electrode inherently controlling an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region during an operation of the multi-domain liquid crystal display.

Examiner's responses to Applicants' ONLY arguments are follows:

Mori disclose inherently auxiliary electrode lines electrically connected to at least one of the gate lines in each pixel region, the auxiliary electrode line and the pixel electrode inherently controlling an orientation of liquid crystal molecules of the liquid

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crystal layer in each pixel region during an operation of the multi-domain liquid crystal display since there is the different voltage between an auxiliary electrode line and common electrode, thus auxiliary electrode line will use to control an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region. Applicant needs to further information of controlling an orientation of liquid crystal molecules of the liquid crystal layer in each pixel region.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571)

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272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H. Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN
Examiner
Art Unit 2871

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ANDREW SCHECHTER
PRIMARY EXAMINER